Sulphur #9

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admitted April 7th 1819

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An

Inaugural Dissertation

on the

Chemical and Medicinal properties

of

Sulphur.

The following Essay was written under several disadvantages, and some apology may be deemed necessary for the hasty manner in which it has been thrown together and submitted to examination. I shall waive the stale excuses usual on these occasions, of youth and inexperience, of being a tyro in medicine &c as the object which prompted this attempt is sufficiently explanatory of those circumstances. But it may be proper to remark that a subject so varieg[illegible] as the one which I have here selected, would necessarily be more extensive and therefore more liable to defects, arising from want of system, than one of a most strictly practical nature. To this I may add that want of health during the most important time, prevented its being completed as early or as satisfactorily to myself as was desired. It is now however respectfully submitted, and its numerous imperfections, it is trusted, will receive that indulgence which might be expected, from the liberal and more enlarged views of its enlightened inspectors.

Introduction.

The Materia Medica in its present state, exhibits such an extensive variety of remedies for the management of diseases, that an attempt to introduce into notice any new article, would appear superfluous, unless it were possessed of very superior powers.

There are already in use, many medicines which might probably be dispensed with. But there are doubtless others, whose properties are not perhaps sufficiently appreciated, though long known as medicines; and which might admit of more extensive application.

Of this latter description, there is one, at present but little regarded in regular practice; and which, though apparently mild in its operation, and not in some respects intelligible, exhibits sometimes results equally salutary with those of the most active or powerful agents. The article to which I allude, and which has been selected as the subject of the following observations, is **Sulphur.**

In investigating the properties of this medicine it is not my object to attribute to it any new virtues, but

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principally to endeavor, by enlarging the sphere of its application, to illustrate its importance, satisfied, that it deserves more attention, than it now generally receives.

To prosecute the subject with that degree of regularity, and that regard to system which is desirable, I propose to consider, in the first place,

The Natural History and Chemical Properties of Sulphur.

Secondly, To offer some preliminary Observations relative to its value as a medicine.

thirdly, Its Modus operandi and Medicinal properties.

and lastly, to consider

Its application to Diseases, together with some general principles to be observed in regulating its employment.

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Natural history &c

Sulphur is found in most parts of the World, and may be procured in greater or less quantity from Mineral, Vegetable, and Animal Substances. But it is chiefly the product of Volcanoes, and is also dug out Mines in Germany; or sublimed from Sulphurous grounds in Italy, near a small town called Sulphatara whence its name originated. Sulphur is seldom found in nature, in a pure unmixed state. So great is its affinity for other substances, that it is almost always found combined with some of them. It is united with metals under various forms, from which it may be separated by the process of roasting. It exists, in many mineral waters combined with Hydrogen, and some vegetables yield it in considerable proportions, especially those of the cruciforme tribe.

Sulphur is a solid, opaque, combustible substance, of a pale yellow colour; insoluble in water, very brittle; with little sensible taste, and a peculiar smell when heated. It is composed of small and ill defined crystals. Its specific gravity

(a) American Dispensatory — by Dr. Coxe.

(x) Henrys Chemistry

is stated at 1.990 or nearly twice as heavy as water. When grasped in the hand, it makes a crackling noise and sometimes breaks, owing probably to the expansive power of heat and its great frangibility. It acquires by friction a resinous electricity. It is fusible at 220°. of Farenheits thermometer; burns with a pale blue flame at 302°. and with a bright white flame at 570°.(a) and it is capable of combining with different proportions of Oxygen.

When Sulphur is fused, if the heat be rapidly increased, it looses its fluidity at 350°. and becomes firm and of a deeper colour. If the temperature be reduced, it regains its fluidity; and this may be alternately repeated in close glass vessels, if the changes of heat be not slow, otherwise it is volatalized. It sublimes at 600°.(x)

Sulphur after being melted, if suffered to cool, congeals into a crystaline form; but so confusedly, that its crystals cannot be defined, farther than that they are slender interlaced fibres.

If Sulphur be kept in fusion in atmospheric air, it absorbs a small quantity of oxygen, (and forms an Oxyde of Sulphur. This when poured into water, forms a soft reddish substance, tenacious like wax, which has been used to take off impressions from medallions. These impressions are hard when the Sulphur becomes

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(a) Coxe's Henry.

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cold. It is then of the specific gravity of 2.325 having considerably increased in weight.[a]

If Sulphur be heated in atmospheric air, sufficiently to take fire, it burns with a pale blue flame, absorbing oxygen from the air, and is converted into Sulphurous acid. When set on fire in pure oxygen, it absorbs its maximum of this gas, burning with a brilliant light, and Sulphuric acid is the product. To form the acid however, it is necessary to make the experiment over water.

The Sulphur of commerce is met with under two forms. The first is of a compact cylindrical shape, so formed by being cast into moulds, and is called the rolled brimstone. The other a light powder, prepared from the first by sublimation in close vessels, is called Flowers of Sulphur. The latter is generally the most pure, but the two varieties are readily convertible into each other by the modified application of heat.

Hitherto Sulphur has been deemed a simple substance. But the suggestions of M. Berthollet junr, rendered it probable that Hydrogen enters into its composition. The late experiments of Mr. Davy tend to confirm this opinion. On submitting it to the action of a

(a) vide Henrys Chemistry — also note by Dr. Coxe.

powerful galvanic battery, he observed that the negative wire gave out Hydrogen; and the existence of Hydrogen in Sulphur was rendered still more probable, by his observing that a small quantity of water was also produced during the combustion. It is yet, however, doubted, whether the Hydrogen in Sulphur is any thing more than an accidental ingredient.(a) But its ultimate radicals are not the object of present enquiry.

Sulphur is the base of a great variety of compounds, many of which constitute the most powerful agents in Chemistry and Medicine. United, as has been observed, with its full proportion of Oxygen it forms Sulphuric acid, and the compounds of this acid with the alkalies and earths called Sulphates. Among these last are several of our most useful cathartic medicines; as that formed with Magnesia — called also Epsom Salt; and with Soda the Glaubers Salt &c.

United with a less proportion of Oxygen it composes Sulphurous acid, and the compounds of this acid with the alkalies & earths called Sulphites. The latter when exposed to the air in solution, absorb oxygen, and are converted into Sulphates.

Sulphur when united with the alkalies or earths by fusion, without the intervention of the acid, forms the binary compounds

called

× Exper. of La Grange

called Sulphurets or Hepars or Livers of Sulphur. These have some of the properties of alkalies; they also decompose water and become partially converted into Sulphates by that process. They have also the property of decomposing metallic oxydes and of reducing or reviving them to their metallic state.

In combination with Hydrogen, it forms the Sulphuretted Hydrogen, and the compounds with alkaline and earthy bases, called Hydro-Sulphurets. In its union with these bases Sulphuretted Hydrogen appears to perform the part of an acid, and presents an exception to the doctrine of acidification. The Hydro Sulphurets by exposure to air absorb oxygen and become Sulphites, which at length by farther oxygenation are converted into Sulphates.

Sulphur united ~~with~~ in a still farther proportion with Hydrogen, forms the Super Sulphuretted Hydrogen, and its compounds with different bases, called Hydrogen Sulphurets, or Sulphuretted Hydro-Sulphurets. These when heated, exhale Sulphuretted Hydrogen gas, and the residue consists of Sulphur.

Sulphur may also be dissolved in, or chemically united with alcohol when both are in a state of vapour, forming the Sulphuret of Carbon or alcohol of Sulphur. This compound in its evap=

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* Aikins Chemical Dictionary.

produces the greatest degree of cold, of any other known substance. The Sulphuret of Carbon was found by Berzelius to be capable of uniting with alkaline & earthy bases, forming Carbo Sulphurets, the properties of which however have not been investigated.

Oil of Turpentine and other essential oils dissolve a considerable proportion of Sulphur when hot, the chief part of which they deposit in Crystals when cooled slowly. The fixed or expressed, and the fatty oils, also, unite with it by boiling, and acquire a deep, yellowish brown colour, and a strong fœtid odour. This combination is termed the Balsam of Sulphur, which also deposits crystals by long keeping.*

The order of affinities to Sulphur, according to Bergman is the following, — Fixed Alkali, Iron, Copper, Tin, Lead, Silver, Bismuth, Antimony, Mercury, Arsenic, and Molybdena.

Of the prepared Sulphur, there are two forms used in Medicine — the Sublimed or Flowers of Sulphur; and the Sulphur Precipitatum, called also the Lac Sulphuris, magistery of Sulphur &c.

The Sublimed Sulphur is prepared by conducting the vapour

(a) Aikin Chem. Dict.y

x Henrys Chemistry

of Melted Sulphur into close vessels or Chambers. It concretes in the form of a glittering, yellow powder, which when examined by a Microscope, appears to be composed of minute crystals.[a] What remains is called Sulphur Vivum. In this manner Sulphur is in part purified, and its purification is completed by boiling it repeatedly in distilled water; then in twice or thrice its weight of Nitro-muriatic acid, diluted with one part of distilled water; and finally by washing it with distilled water till this comes of tasteless, and incapable of changing the blue colours of vegetables.[+] To purify the Flowers of Sulphur from admixture with sulphurous acid a small quantity of which is generally present after the process of Sublimation, it is also directed, to wash the powder first with a warm and very dilute solution of Pearl ash, and then with two or three successive portions of warm water.

The <u>Lac Sulphuris</u> is prepared by decomposing with the Sulphuric or other acid, a Solution of Alkaline Sulphuret. A copious white precipitate falls down, which is to be thoroughly edulcorated by successive portions of warm water. Sulpheur in this state, has a dull earthy appearance, owing as it is said to its extremely minute state of division. It is of a yellowish white colour,

× vide Aikin Chem. Dictyy.

(a) Sulphur Sublimatum Lotum – or washed Flowers of Sulphur.

smooth and almost unctuous to the touch. By exposure to light it acquires a yellow colour.[+] This is thought to be the purest kind.

These two forms of purified Sulphur are both used in Medicine. There is little difference between them, but it is the former,[a] as being the most common, to which I shall confine my remarks.

Having now given a general outline of the Chemical history and properties of Sulphur, with the mode of preparing it for Medical use; we shall next proceed to the second division of our subject, which consists chiefly of Observations relative to the importance of Sulphur as a Medicine.

Preliminary observations &c

As an article of medicine, Sulphur has long been in use, and the high expectations formerly entertained of its powers, occasioned perhaps, in many instances, its too indiscriminate employment. So great indeed appears to have been the confidence placed in it on some occasions, that it was expected, as if by a magical power,

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to cure some of the most violent and obstinate diseases. Hence it was prescribed without attention to those circumstances, which in regular modern practice, would suggest the propriety or impropriety of its administration. The numerous disappointments sustained from its former mode of employment, occasioned it gradually to loose credit, until it had shared the fate of many other remedies, and nearly ceased to be regarded as a medicine. To its indiscriminate employment, may perhaps be added as another cause of its neglect, the great abundance with which it began to be procured, and the consequent reduction of its price; by which it became too cheap to deserve particular attention as a medicine. This disposition, to be attracted by novelties, is so common to human nature; that in every age and country, those articles which were most common or abundant, however valuable, have been least regarded. The aboriginal native of South America, for example, would formerly have exchanged masses of Gold, because he had it in abundance and knew not its value, for the most insignificant toy, which attracted his attention, only on account of its novelty or the difficulty with which it was obtained.

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into a state of obscurity, having excited little attention among modern practitioners, except as an external remedy in some of the Cutaneous affections. Recently however its internal employment has been revived to a considerable extent; and it is to this University in a great degree, and especially to the accurate observance and high authority of Dr. Physick, that it owes its present respectability, (and, if I may be allowed to predict, its future celebrity. It will be found I am convinced, at no distant period, when its diversified properties are more generally known, a medicine of no inconsiderable utility, (and one which will admit of very extensive application.

We might infer, a priori, the important agency of Sulphur as a medicine, from the following Considerations,

1. It is more widely diffused through nature, than any other substance with which we are acquainted, and therefore seems to have been intended by an all-wise Creator to subserve some useful purpose. Why may it not have been intended for the preservation of health, as well as to be so useful in the arts?

2. It combines with, and changes the properties of, many of the most powerful agents.

3. It is the base of a great variety of compounds, some of which are

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are of the most active and powerful description. "It is employed by nature in a great number of her operations. She presents it under various forms among fossils — Charges with it the waters denominated Sulphurous — Mineralizes with it the metals — causes it to pass into the vegetable and animal fibres — and exhibits it to Chemists under an infinite number of combinations." It is presumable therefore, that so powerful a Chemical agent, may also be found equally efficaceous as a Medicine; and exercise powers in the animal Economy, which heretofore have either passed unobserved, or have not been sufficiently appreciated. Having premised these remarks, we shall next consider the Modus operandi, and Medicinal properties of Sulphur, preparatory to its practical application.

Modus operandi &c.

In its action on the System Sulphur appears to perform the part of a Purgative or Laxative, a Diaphoretic, and in some degree, of a Tonic. But other properties have been ascribed to it, which we shall hereafter mention. Taken in doses of ℥j or ℥ij, it generally induces an easy evacuation from the bowels, by gently stimulating and increasing

(a) From the general effects which Sulphur appears to display on the System, it is reasonable to suppose that it promotes absorption by increasing the tonic powers of the Lymphatics.

their peristaltic motion. As a purge, it acts chiefly on the great intestines, though it appears also to leave a tonic impression along the whole course of the Alimentary Canal, and after its operation, leaves a laxative tendency, without inducing that sort of debility which disposes to flatulence or Costiveness. At the same time that it operates on the bowels, it promotes gentle Diaphoresis, by relaxing the surface and increasing the action of the Cutaneous vessels. The pulse is rendered by it softer and more voluminous or open. It appears to diminish the ordinary quantity of Urine, which it must do, either on the principle of revulsion, or by increasing the power of the absorbent System. The other Secretions seem to be increased. It also leaves a Tonic impression on the Stomach, by which the appetite and digestive are increased, and the whole System invigorated.(a)

display on the absorption

Although as a Laxative, Sulphur is in general, mild in its operation, its effects are sometimes harsh and distressing. Cases of Idiosyncracy do sometimes occur, where it produces painful evacuations, or distention and other uneasy Symptoms. I have known one instance of effects of this kind in a lady, who always experienced severe symptoms of Colic after taking a dose of the medicine. These effects however are in most cases, attributable to the impurity of the medicine, as a portion of the

(a) vide Therapeutics by Dr. Chapman.

Sulphur in sublimation, usually combines with the Oxygen of the atmosphere, if air be not carefully excluded, forming Sulphurous acid. This acidity should be destroyed by repeated ablution, and the washed Flowers of Sulphur only, used internally.

The Modus Operandi of Sulphur, like that of other medicines which induce perspiration, is still a subject of discussion, and I shall merely observe, that there two leading opinions which may be briefly noticed. According to one, it produces its effects by entering the circulation, and operating on the fluids of the body, altering or correcting their vitiated condition. The other supposes it to act by exciting a primary local impression on the Stomach, which is extend=ed through the medium of Sympathy to other parts of the body; and that if it enters the circulation, it is as a digested ~~or assimilated~~ portion of Chyle, in an assimilated state.[a]

In favour of the former opinion it is urged that Sulphur may be detected passing through the surface after its internal use, and that therefore it must have previously entered the circulation. This opinion is entertained by Dr. Coxe, who, after observing that Sulphur operates as a Laxative and promotes the insensible perspiration, they proceeds, "it seems to pass through the whole habit, and manifestly transpires through the

× vide American Dispensatory.

(*) vide note to Caldwells Collins.

pores of the Skin, as appears from the Sulphurous Smell of persons who have taken it, (and from Silver being stained in their pockets of a black=ish colour, which is the known effect of Sulphurous fumes.)"

In favour of the latter opinion it is maintained, that it has never been detected in the circulation, in its crude or formal; that the blood being a highly elaborated fluid, whatever is conveyed into it is rendered homogeneous by the secretory action of the Lacteals, and no change in its taste, odour, &c. takes place. But that when a substance of this kind, is perceptible in the secretions and excretions of the body, it had been revived, after being permitted to act uncontrolled by the powers of assimilation. It is thus "that "Soda and potash, are formed by combustion from plants which contain nothing but the raw materials out of which these articles are made without combustion they cannot be obtained, although substantially present in the plant.(*)"

Whether in its operation as a diaphoretic, Sulphur does enter the circulation and of necessity alter the condition of the blood: or whether the effects produced, are exclusively the consequence of sympathy, by which a primary impression on the stomach is transmitted to the surface, I beg leave to refer to the decision of those, whose superior judgement and more extensive research, render them better qualified than myself to

answer

(a) "Promovet autem interno usu transpirationem insensibilem, muci ex pectore, alvique ipsam excretionem, vermes necandi potentia quoque gaudens."

Murrayi app. med.

answer so intricate a question.

Having premised these remarks, on the modus operandi of Sulphur in which nothing more has been ventured, than to give a hasty of the opinions entertained on the subject; I next proceed to the consideration of its Medicinal properties. Formerly our medicine had a considerable variety of properties ascribed to it, and with perhaps some exceptions, the views long long since entertained of its effects, will be found for the most part correct, although its application may not have been founded on such principles as would be approved of in modern practice.
In the Apparatus Medicaminum of Murray, Sulphur is mentioned as possessing not only the properties of a Laxative and Diaphoretic, but also as an Anthelmintic or Vermifuge, and an Expectorant.(a) "It is useful" he says "in diseases originating from suppressed perspiration, for example in Rheumatism and in Wandering Gout;" and for this purpose it was prescribed in doses of ℈ss to ʒss with sugar or any other inert vehicle. Some circumspection however he observes is necessary in regulating its employment, as when there is a collection of sordes "blocking up the prima via" it either does no good or is injurious on account of its heating property. The same writer also observes that Sulphur exhibits the same good effects in the diseases of the Breast, as in those arising from suppressed perspiration. "It removes viscid phlegm

× In the same work is also recommended the Balsamum Sulphuris Terebin=inatum, or Balsam of Sulphur with oil of Turpentine "in all diseases of the Breast and likewise for ulcerations & obstructions of the urinary passages." This is the only preparation of Sulphur that I know of which operates as a Diuretic. The dose is 6 to 15 or 20 drops on sugar.

Might not this be useful in some protracted cases of Dropsy?

stuffing up the lungs and other fertile causes of the diseases of the breast;" and it appears from the time of Dioscorides to have been recommended in humoral asthma &c.

On account of its ~~supposed~~ action as an Expectorant, and its supposed palliative property in affections of the breast, great confidence was at one time placed in its powers. About 60 or 70 years since (1766) it was recommended by Schroeder as "the only efficacious remedy" in Convulsive cough, and in ulcerations of the Lungs. But employed under such circumstances it was more likely to loose credit than to be of much service.

In (an old work) (Quincys Dispensatory,) the following properties are ascribed to the Flowers of Sulphur. "They are used in the diseases of the breast & likewise in cutaneous distempers both internally and externally. They are certainly both balsamic and detersive (and) it is their great plenty which lessens their esteem. Every preparation of this mineral is very effectual in lowering a Salivation (and hindering the ~~effects~~ operations of Mercury by those particular glands; and also gives great ease to those troubled with the Hemmorrhoids.[x] "

Murray in his Apparatus Medicaminum, speaks of the use ~~of the use~~ of Sulphur to mitigate the effects of several of the mineral poisons, besides the effects of mercury on the salivary glands. It was employed to counteract the effects of antimony and even of Arsenic on the Stomach (and intestines. A case is

× Navier (contrepoisons de l'arsenic, du sublim. Corrosif. et du plomb.)
a Paris 1777. —

is also noticed in which Sulphur had been successfully used in a patient who had swallowed Verdigris (viride aeris)[†]. Whether the medicine is entitled to the properties last attributed to it, I am not prepared to assert or deny, but would only remark, that it wants the sanction of farther authority to establish its utility in these cases.

Cullen speaks of Sulphur only as a Laxative, but says "it has this operation without heating the body, and for the most part without griping the bowels: and were it not for the fator which sometimes attends its operation, and is ready to be diffused through the air around, Sulphur would be one of most agreeable laxatives that could be employed."

Dr. Chapman in his Materia Medica, treats of Sulphur as a Laxative and Diaphoretic, and also speaks of its Antispasmodic property "in removing those painful spasmodic affections denominated Cramps;" by wearing pads of Sulphur on the part prone to such attacks, much benefit has been experienced. A case is given to this purport of a man who had been subject to cramps of the abdominal muscles, and who after having tried various remedies without success, was effectually relieved by the use of this remedy. The antispasmodic property of Sulphur was here strikingly exemplified; as the pad while on prevented the attack, but on taking it off the spasms returned. Its steady use for some weeks eventuated in a cure.

Sulphur would also appear to act as a Tonic, as it has been found in

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the practice of Dr. Physicks, a useful substitute, in some anomalous cases, where ordinary Tonics were inadmissible or had failed to do good. Of its use in this particular, we shall hereafter have occasion to speak in the application of the remedy to Intermittent fever.

Having now considered the general effects of Sulphur on the system, with the opinions of different authorities relative to its Medicinal properties, we shall proceed to its practical application. Enough has been said perhaps to establish the opinion of its multifarious properties. Combining together those of an aperient or Laxative, Diaphoretic, Antispasmodic, Tonic, and Expectorant, it may unquestionably be resorted with advantage, under proper circumstances, in a great variety of Diseases; the most prominent cases of which will next claim our attention, together with some general principles to be observed in regulating its employment.

Practical application of Sulphur.

From the diversified properties of Sulphur we may naturally conclude that it is suited to a variety of indications, which are now to be considered in the order of the diseases in which they occur. Without noticing

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in detail the separate application of these properties, which would much exceed the limits prescribed to this paper; the design is, to select such cases as are suitable to the whole, and thus condense our remarks into as small a compass as perspicuity will permit.

To Diseases of an Inflammatory nature or of high action, which require copious evacuations and active depletion, Sulphur, from the properties which we have already noticed, is obviously not adapted, at least in their early stages. But to those of a lingering, protracted or chronic character, it is a most useful medicine under a variety of circumstances.

Many of the diseases of the alimentary canal properly so called, are of the latter description, and among these, not the least common or troublesome is Dyspepsia or Indigestion. This disease is of frequent occurrence and is sometimes difficult to manage. The subjects of its attack are mostly the studious and sedentary, and those of feeble and delicate habits. Its exciting causes are numerous, and have been divided into Internal and External, or such as act immediately on the Stomach, and such as act on the Stomach through the medium of other parts of the body. Of the first of causes may be enumerated Indigestible food, improper articles of diet or drinks, the habitual use of Tobacco, opium, &c. The external causes of Dyspepsia are, Intense study, sedentary occupations, Vexation of Spirits, a sudden Cold,

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habitual costiveness &c. The symptoms of this disease are, a want of appetite, nausea, sudden and transient distensions of the Stomach eructations, Cardialgia, pains in the regions of the Stomach, costiveness &c. The appetite however is not uniformly wanting, but sometimes preternaturally increased. There are also several anomalous symptoms, which sometimes attend this disease, as Vertigo, palpitation, depraved vision &c.

The Proximate cause has been defined by Cullen, to be a loss of tone or a weaker action of the muscular fibres of the Stomach. A more recent however is, that it consists in a depraved or vitiated action of that organ, by which digestion is imperfectly carried on. But in whatever way we consider it, the medicine now under consideration is alike applicable.

In the Treatment of Dyspepsia, the exciting causes are to be avoided; and an Emetic is generally resorted to, in the first instance, to cleanse the Stomach, & make a strong impression. After which the milder purgatives or Laxatives are to be resorted to. It is here that the Sulphur may be used with great advantage; and from its diversified properties we might expect it to exert a beneficial tendency. It equalizes the excitement, promotes diaphoresis, obviates costiveness, and tends greatly to relieve the nausea and other distressing symptoms.

× The Lac Sulphuris is frequently used with Magnesia in these cases, but there is little difference, if any, between this preparation and the well prepared Washed Sulphur.

From the effects which follow the repeated use of Sulphur, it would seem also to act as an alterative, changing imperceptibly the morbid condition of the Stomach, till it finally restores that organ to its natural tone and healthy functions. When there is much acidity, it has been advised to give it combined with Magnesia. After thus correcting the State of the Stomach, the vegetable and mineral Tonics are usually resorted to. But in the milder forms of the complaint, after the evacuation of the Stomach and bowels, by an Emetic or purgative, the use of Sulphur continued for some time, would alone be highly advantageous, both to give relief and prevent the recurrence of the disease.

There is another disease which appears closely allied to, and is probably a Symptom of Dyspepsia, called the Sick Head-ach, which recurs periodically, and is often preceded by many of the Symptoms of imperfect digestion above enumerated. The use of Sulphur combined with Magnesia as an aperient, would in this case also be highly advantageous, after active evacuations had been premised.

The use of Sulphur in Constipation is also attended with much benefit. This, though not always productive of similar effects on different individuals, is connected with and often an exciting cause of Dyspepsia. There are indeed some instances recorded of persons having passed weeks,

× vide Therapeutics by Dr. Chapman — A case is also recorded by Haller of a person who had passed 20 years without an alvine discharge — if my memory is correct — I have not the work at present to refer to.

months, and even years without an evacuation from the bowels, and who appeared to suffer but little inconvenience from its interruption.[x] But this habit of body is generally destructive to health, and causes Vertigo, headache, nausea, fœtid breath and offensive excretions when they are discharged. Whether we attribute this condition of the bowels, to an irritability or morbid weakness, or to a deficiency of bile & a vitiation of its properties; the use of Sulphur would appear to be alike indicated; after a previous evacuation by strong cathartics, to relieve the bowels of indurated and impacted fæces. The rationale of its operation would be to quiet that irritable state of the bowels, by promoting easy and regular discharges; and by its pervading influence over the body, and its power of increasing the secretions, it would greatly tend to invigorate the action of the Liver, obviate the deficiency of bile, and improve its condition. It might be given alone, or with Magnesia, or Cremor Tartar, in doses of ʒj or ʒij each, once or twice a day, as the case might demand, to produce habitual daily evacuations. To illustrate the superiority of Sulphur in Constipation, it may be necessary to remark, that most other purges, by producing large evacuations, occasion indirect debility of the intestines, and a state of Costiveness again ensues, after their operation. But Sulphur on the contrary, by acting principally on the

(a) Chapmans Therap.s & Materia Med.

great intestines, the mildness of its operation, and probably also by the tonic impression which it imparts, appears well calculated to obviate that disposition. "To habitual costiveness Sulphur seems well adapted, as it leaves a laxative tendency, after its operation, without inducing that state of weakness which disposes to flatulence or eructations.[a]" In these cases, it is recommended to be sometimes combined with equal parts of Cremor Tartar in form of an electuary.

In Colic, the use of Sulphur has been attended in some instances with much benefit. I have known it prove highly efficacious in a gentleman who was subject to what was denominated Bilious Colic, after an autumnal remittent or bilious fever, from which he did not for a long time recover his usual health. These attacks generally confined him several days, and were accompanied with a yellowness of the eyes and skin, Cardialgia, eructations, indigestion, and a general derangement of the functions of the body. After a variety of treatment, he was at length induced to resort to the use of Sulphur, whenever a slight pain, with eructations, and other premonitory signs of an approaching attack, made their appearance; and the result was a complete eradication of the predisposition to those attacks, and the restoration of health. It should not be omitted, that on several occasions a dose of the

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Sulphur, if taken before the pain became very severe, procured relief as effectually as an Anodyne; and its repeated use for several days prevented the recurrence of pain. It was his practice to use the medicine in doses of about ℥j twice a day, until digestion was measurably restored; and by its repeated employment in this way, his health became fully established.

Sulphur was once considerably used in Dysentery. To the more violent forms of this disease, I would not suppose it well adapted, as more active treatment would be demanded. Yet, as observed by Dr. Chapman "in Dysentery of that species which partakes of the character of Rheumatism or Catarrh, Sulphur might perhaps be applied with advantage".

In Diarrhea much more benefit is to be expected the use of the medicine. Here however it is also proper to resort previously to the use of an Emetic and one of the more active Cathartics, to evacuate thoroughly the alimentary Canal. In that form of Diarrhea which succeeds an attack of Measles, it has been found a most useful remedy, as the history of my own case, will serve to illustrate. (In the year 1813, during a slow recovery from a violent attack of Measles, I was seized with a Diarrhea accompanied with distressing tormina and tenesmus. The discharges from the bowels were sparing and bloody, as in Dysentery, and the

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disposition to evacuate frequent and sometimes unavailing. There was also much pain and a slight tumefaction about the perineum. The pulse as well as I can remember, more feeble and frequent than natural; there was also some febricula or inward fever, and a general prostration of strength. At that time, I had not commenced the study of medicine, and of course knew nothing of the principles of practice; but it appeared to me a natural inference, that the affection of the bowels might be relieved by inducing a determination to the surface; I was therefore led to make the experiment. Having seen sulphur considerably used, I had some opportunity of observing its effects, and determined on giving it a trial. Accordingly after having premised a dose of the Sulphas Magnesiæ to induce a free evacuation from the bowels, I began the use of Sulphur in doses of about ʒij three times a day; subsisting at the same time, on thin, spare diet. This remedy happily had the desired effect: a cessation of pain quickly ensued; the tormina and tenesmus imperceptibly vanished; a reappearance of natural stools took place; and in about three days complete relief ensued.) In this case the Sulphur appeared to perform the part not only of a Laxative & Diaphoretic, but also as an Antispasmodic and Tonic. It certainly proved an efficacious remedy, and exhibited in its effects the combined operation of each of these properties.

x I have been informed from very respectable authority, of two or three cases of hemmorrhoids, being effectually relieved by pads of Sulphur worn on some adjacent part. In one of those cases the gentleman informed me that he had been subject to this disease many years, but that since his practice of wearing the Sulphur pad in one of the pockets of his pantaloons, he was entirely freed from it.

A roll of brimstone is sometimes used in place of the pad.

(a) As a preventative to Intermittents, or to guard the system against a liability to their attacks, the occasional use of Sulphur might be serviceable in miasmatic Countries. It is known that the Smell of Sulphur, may be perceived in the evacuations, some days after it has been taken. From the permanent impression therefore, which it appears to make on the System, it is reasonable to suppose that its action would be sufficient to resist or prevent morbid impressions.

For the same reason, might it not be useful as a preventative, if medicines can act in that way, to the infection of Typhus fever in crowded places?

From the action of Sulphur on the great intestines, and its tendency to allay the irritation of these parts, it is a most useful remedy in Hemmorrhoids or Piles. It seems to have early employed in these cases, and the credit which it yet supports is a proof of its utility. It is used both internally, and externally in the form of an unguent.

In the cure of Intermittents this medicine has of late excited much attention. It appears to have been first used in these cases, by a writer on the anomalous fevers of Pattavia, of the name of Grainger; who states, that by giving ℥ij of Sulphur in brandy, an hour previous to the anticipated return of the paroxysm, it will be altogether prevented. The success of this mixture was at first imputed to the brandy, but in the practice of Dr. Chapman, it has proved equally beneficial, when given in "Milk, Syrup or any other inert vehicle; and he observes, that having lately seen many cases of confirmed ague and fever cured by it, he now believes "Sulphur alone to be the efficient ingredient." (a)

In the Hectic of Phthisis, it has been employed also, with advantage by Dr. Chapman, who observes that "few articles evince more power over the febrile condition, especially when marked by the paroxysmal type than Sulphur." The ample experience of Dr. Physick with this medicine, in periodical headache, and

other

× vide Therapeutics by Dr Chapman.

other paroxysmal diseases, appears to be altogether in its favour. To express more completely what I have to say of the efficacy of Sulphur in these cases, I beg leave to add to the quotations already made, the following from Dr. Chapman. "It affords me pleasure to be enabled to cite the authority of Dr. Physick in support of this view of the properties of the medicine. Nay he goes so far as to declare, that in all fevers of an anomalous or equivocal character, having a tendency to intermit, & where from the state of the system, the ordinary tonics are inadmissible, he has experienced from Sulphur the best effects. The use of the medicine he would even extend to other periodical diseases, and above all, to affections of the head, of this description, the propriety of doing which I have witnessed in several cases in my own practice†." It may now be seen, on what authority and under what circumstances, I advocate the employment of this medicine. It is true, that in many instances its influence on the system is not so apparent. But it is not to be considered on this account less efficacious. How often do we see medicines of the least perceptible activity produce the most powerful results? Such is the operation of Mercury when gradually administered to produce Salivation. And the action of all tonic medicines

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To Remittent fever, the application of Sulphur is not very apparent, except during Convalescence, to regulate the state of the bowels, and to correct any anomalous symptoms which may occur.

In Typhus fever, medicines of a more active kind are required. But Sulphur might be usefully employed in those cases, where gentle evacuations from the bowels are necessary; and from its tonic power combined with its laxative property, it answer this indication without increasing the debility. It would also assist in determining to the surface, by increasing the action of the Cutaneous vessels, and aid in supporting the system as a gentle restorative.

In some of the milder forms of the late Winter Epidemic, where it assumed the pneumonic form, I have known it used with success conjoined with warm beverages. It appeared to do good in these cases by operating as a laxative and a gently stimulating diaphoretic, while at the same time, it quieted the Cough & rendered expectoration more easy.

The use of Sulphur in Pestis or Plague, is spoken of by some of the older writers. It appears to have been so highly esteemed by Cardaluccius, as to be thought almost a Specific against that disease.

He

× Fumigations of Sulphur were recommended by Halesius (in the "Gentlemans Magazine" for 1754) for destroying or preventing the contagion of Plague. Murrays app. med.

Whether the internal use of Sulphur, or the Sulphurous acid formed by fumigation, are, either, serviceable, in relieving or preventing the disease, is a question not for me to decide.

* It may be proper to observe that there is a preparation of Sulphur, the Hepatized or Hydro-Sulphuret of ammonia, which is recommended by Dr. Rollo as a remedy for Diabetes. — (vide note to Cadwells Bulletin)

This preparation is formed by the direct mixture of Sulphuretted Hydrogen, and ammonical gases, in a dry vessel: or by passing Sulphuretted Hydrogen gas, through a solution of pure ammonia, 'till the liquid assumes a yellow colour.

Coxe's Henry.

He advised it to be given with Vinegar. It is said also by Desardinieres that the Plague which prevailed in Hungary in 1746 was successfully treated by the use of this Medicine.+

The utility of Sulphur in Dropsy is not obvious. But, a priori, I would suppose it serviceable in that state of the disease, in which Diaphoretics are indicated. It would doubtless have some tendency to equalize the excitement, as well as to promote absorption, and assist in the reestablishment of health.

In Diabetes, the use of Sulphur would appear to be more strongly indicated, whether the origin of the disease be referred to a derangement of the secretory organs of the urine, or to a vitiated or depraved condition of the digestive functions. Its known property of diverting action from the Kidneys to the surface, would point out its utility under the first view; and its utility in Dyspepsia would render it applicable to the second. Nevertheless I would not presume to propose it, any further than as an auxilliary remedy in that state, in which Diaphoretics and tonics are employed.*

In Repelled Eruptions the use of Sulphur has been highly recommended, and in Asthma, Epilepsy and other Convulsive diseases brought on in this way. To relieve the Epilepsy of Infants, it is

recommended

× Chapman, Therap.s and Materia Med.

recommended by Hoffman, Rosenstein, and others, that the mother or nourse should take as much as would lie on the point of a knife, and that the eruptions were by this means restored to the surface. Whether the milk of the mother or nourse could be so impregnated, with Sulphur as to produce salutary effects on the child; is yet perhaps a question not fully determined. I have known the Sulphur to be employed in Rubeola or Measles, where a fading or striking in of the efflorescence, was apprehended, but with what advantage, I am unable to say, as the apprehension might or might not have been well founded.

Sulphur has been also highly thought of as a remedy in protracted cases of Asthma, Catarrh, Whooping Cough, and other chronic affections of the chest. The confidence of practitioners in its virtues was once so great in the pectoral affections that it obtained the title of Anima Pulmonum. In several chronic cases of this nature, I have myself, witnessed its beneficial effects, and have also seen it used with apparent advantage in the cough which accompanies Rubeola or Measles.

Of the diseases of the Muscular System, we are now to consider Gout as one to which Sulphur is also applicable. This disease has at all times excited the interest of the ablest practitioners, and much discussion has arisen, both as regards its Pathology, and the remedies best adapted for its cure.

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It appears now to be an opinion generally entertained, that the disease whatever may be its ostensible seat, has its origin in the alimentary Canal, and that whether it arise from hereditary predisposition, or from any exciting or occasional cause, the Stomach is the organ primarily affected. This view of the subject is principally drawn from its having been observed to commence, almost invariably with dyspepsia, or those symptoms which denote a depraved or vitiated condition of the Stomach and bowels; such as flatulence, sour eructations, nausea, sensations of internal heat, depraved appetite, and laxity of the bowels, or costiveness: all of which require the use of remedies suited to reinstate the healthy action of the Stomach.

The two leading forms of Gout are the Tonic and Atonic, to each of which under proper circumstances the Sulphur is applicable. In Tonic Gout it would appear to be indicated in the forming stage of a paroxysm, as well as after its occurrence. The premonitory signs of an approaching attack, are, a sense of numbness & coldness of the lower extremities, while the body is affected with torpor and languor, and the functions of the Stomach impaired, with a loss of appetite, costiveness, flatulence, and other symptoms of indigestion. As these symptoms usually last several days before a paroxysm comes on, there is generally time for the interposition of remedies; and here the use of Sulphur would undoubtedly be serviceable. It would, by its laxative property, obviate costiveness, at the same

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time it would promote diaphoresis, and equalize the excitement; and as much perhaps as any other remedy, tend to reinstate the healthy action of the System and obviate the attack. On the appearance of the paroxysm however, a more active course of treatment becomes necessary. Where the symptoms are violent, with inflammatory diathesis, a full pulse, and a plethoric habit, Bloodletting would be called for; after which active purging, and Emetics where the patient had been exposed to marsh exhalations, have been advised as the proper course. When the System has been sufficiently reduced, by the antiphlogistic remedies, and the alimentary canal freely evacuated, the use of Sulphur alone or with magnesia may be resorted to with advantage. As paroxysms of Gout have been observed to go off with spontaneous Diarrhea or Diaphoresis, Sulphur is calculated to meet this double indication pointed out by nature, but in a gentler manner; and from the mildness of its operation, might also be continued with the use of Tonics when they became necessary.

In the atonic state of Gout, when remedies are employed, which are calculated to invigorate the System, the article of which we are treating is also essential. I have before remarked, in speaking of Constipation, that Sulphur after opening the bowels, leaves a laxative tendency without inducing that sort of weakness which disposes to flatulence &c. On this principle therefore, it is highly important; besides its tendency to equalize the excitement, and its general

restorative

× "Essay on the true nature and the true method of Curating the Gout." (London 1722.)

restorative power. To guard against Costiveness, in this disease is one of the strictest injunctions, and I know of no remedy which seems to answer this purpose so well as Sulphur. With this view it should be employed in such doses and at such intervals, as may be necessary to keep the bowels in an open condition; and where there is too much acidity, Magnesia might be occasionally added with advantage.

The practice of using Sulphur in Gout is not a new one. Nearly a century ago, it was much employed by Cheyne, a very distinguished writer on this disease, who says he has cured both arthritic and podagra, by giving each day ℥ss of Sulphur in Milk on an empty Stomach.*

Dr Chapman speaks of Sulphur as a useful remedy in Gout, particularly "when it attacks the alimentary Canal with flatulence and spasmodic uneasiness:" he also says "that it has been much used to evacuate the bowels in Regular Podagra." So that from former as well as more recent ~~experience~~ observation, it supports the character of a remedy which has been of much service; and it is highly probable that if its use were persisted in for a great length of time, it would be as likely as any other remedy to eradicate the disease. As an alterative it has in some instances displayed the most astonishing powers, though not in the disease of which we are treating.

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somewhat allied to and associated with Gout, we are next to mention Rheumatism. These two diseases sometimes resemble each other so much, that it is difficult to distinguish them. The principal difference, appears to be, that Gout often arises from hereditary predisposition; Rheumatism not without some obvious cause. In the former, ~~the former~~ the Stomach is supposed to be the primary seat; in the latter, the affection seems more purely local. In the former also, the joints are less swollen than in the latter; And lastly, the former, has been denominated by Dr. Rush a centripedal and the latter, a centrifugal disease. Rheumatism has however been observed to attack every part of the body, not excepting the alimentary canal; but not as a primary affection; in most cases the appetite and digestion remain unimpaired. Although this disease is often highly inflammatory, yet it seems to be a disease of peculiar action, as it does not progress nor terminate like true phlegmonous inflammation. Two forms are also pointed out in Rheumatism; the Tonic and Atonic, or acute and Chronic. The treatment advised in the acute form of Rheumatism, is to begin with active evacuations, and a rigid prosecution of the antiphlogistic plan, differing little from the treatment of Tonic Gout, except in requiring a freer and longer use of Diaphoretics, and more attention to

x In miasmatic countries where the disease is associated with Intermittent fever, the use of Sulphur is especially recommended both alone and with tonics; but to do good its employment should be steadily persisted in a considerable length of time.

topical remedies. When Bloodletting and the other evacuants have been liberally premised, the Sulphur will come in advantageously with the more active diaphoretics, and lastly alone, to exterminate the disease.

In the Chronic form of Rheumatism, it is even more strongly indicated than in the acute. There is in this form, often great irritability of the arterial system, accompanied with prostration of Muscular power. In this case, a strong impression having been previously made, by an active purge, the use of Sulphur may be resorted to with great advantage, to regulate the state of the bowels, (and equalize excitement; it also tends, as has been observed, to diffuse a more healthy action throughout the body, excites moderate diaphoresis, and assists in sustaining degree of temperature.

In Rheumatalgia a low form of disease, arising from long protracted or ill cured Rheumatism, the late Dr. Rush recommended the "habitual use of Sulphur" as an alterative.

To the chronic state of Rheumatism attended with pain, the remedy is highly spoken of by Dr. Chapman, who observes "that in proportion as he employs it in this disease his confidence in its powers is strengthened." It has been advised to give it in such doses as to keep the

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the bowels in a laxative condition and to excite perspiration. When it becomes necessary to excite the bowels more actively, it may be used with Magnesia or Cremor Tartar. It may also be advantageously employed along with Stimulating Diaphoretics and Cordials.

Through the politeness of my friend Mr. Gwathmey, one of the resident Students in the Alms House, who at my request employed the Sulphur in what we considered a proper subject for its use; I am enabled to present the following Case, as exhibiting very satisfactorily its efficacy in a very obstinate form of Chronic Rheumatism.

(Judith Gilpin Aet. 39 — has been affected with Chronic Rheumatism, for the last 15 months. She took cold in November 1817 and was much afflicted with pains in her limbs. She was unable to move her hands or feet for three months. After a variety of treatment, she underwent a Salivation, which restored her feelings, and during the last summer she was enabled to move about a little, with the assistance of crutches. But on the return of fall, her complaint returned in all its severity. No medical attention however was rendered her, until she was admitted into this house, on Decr. 29th 1818. Her symptoms at this time were Soreness and Stiffness of the limbs, pain in the back, warm dry skin, weak & frequent pulse, her appetite pretty good; alvine evacuations

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regularly every 24 hours; no swelling of the joints. After purging her for several days with Sulphur, and Sup. Tart. Potassæ, she was put on the use of Sulphur alone, ℥j ter de die. Peruvian Bark was afterwards combined with it for several days; but wishing to give the Sulphur a fair trial, it was omitted. That medicine (Sulphur) had not been persisted in, many days, before she informed Mr. G. with a countenance expressive of much gratitude, that she felt stronger and could begin to move her limbs. The medicine made her sweat, but sometimes affected her bowels, causing a trifling griping. In 12 or 13 days she requested that a pair of crutches should be procured, that she "wanted to try to walk and sit by the fire." Her first essay cost her considerable fatigue, perhaps from the rigidity and want of tone in her muscular system. The Sulphur has been continued with occasional intermission, when the bowels became affected, (and has been the only medicine prescribed. She now (20th Feby.) walks, with very little assistance, and her general health is much improved. There has been an almost continued moisture on the surface, and the pulse has become slower and fuller.

This case is very conclusive, and is almost alone sufficient to establish the efficacy of Sulphur as a medince in Chronic Rheumatism. Others, however,

(a) I do not however consider either as specifics, but only as being particularly applicable, under proper circumstances, to the diseases mentioned. In denying the opinion of the specific nature of Bark, I am aware that the most respectable former authority is against me, but I am not sure that the prevailing opinion (of the specific nature of Bark in intermittents) is not founded more on tradition than on actual observation. 1. I do not consider Bark a specific, because Intermittent fever can be cured without the use of it, various other tonics having been employed successfully during apyrexia. 2 Bark alone will not in most cases effect a cure of the disease, but, as every practitioner knows, proves highly pernicious by aggravating the paroxysm, unless evacuants have been premised; the latter as doing equal service are as much entitled to the name of specific. 3. Bark is not suited to pyrexia as well as apyrexia. To be a specific it should be under all circumstances successful. Of the two medicines, Sulphur appears to such a character ~~than Bark~~, if either can be specifics, ~~better~~ to be better entitled than Bark, not only in chronic Rheumatism, but Intermittent fever.

See what has been said under the head of Intermittent fever

might be added if time would permit, which tend to confirm this opinion.

The efficacy of Sulphur in chronic Rheumatism, is not readily accounted for. Its more obvious properties, as before observed, are to induce a laxative tendency in the bowels, and determine to the surface of the body. But this two fold operation, is not sufficient to explain its utility; as the same success does not appear to attend the use of other medicines possessing these properties singly, & even in a higher degree. Its efficacy must therefore be owing to the combined operation of very diversified powers. It seems indeed, to exert a peculiar action, which is particularly applicable to this disease; and in all probability, when its powers shall have been fully tested, it will be found as much a specific in Chronic Rheumatism as Peruvian Bark in Intermittent fever. (a)

Sulphur has been also considerably used in Paralysis, and appears to evince its utility even when it does not operate as an aperient.

By the late Dr Rush Sulphur has been recommended in the forming stage of Epilepsy. It is one of those remedies which sometimes serves to ward off, or prevent the occurrence of a paroxysm, after

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after the appearance of some of the premonitory signs. In short, to all the diseases of the Muscular System, Sulphur may be said, to under proper circumstances, to be particularly adapted, and generally useful.

To many of the Cutaneous diseases Sulphur is also applicable. Of its employment as an External remedy little need be said. Its use as an External remedy in Psora is too well known to require observation. In Tinea Capitis it has proved in the practice of Dr. Chapman highly useful. An Ugument made of the Sulphur with Lard, and the addition of the Muriat Ammonia, is said to have been effectual, in Cases which had baffled other remedies.

Having now treated this subject as extensively, as time or the limits of an Essay will allow, it only remains before we conclude, to add a few general observations relative to the employment of the Medicine.

1. It is not adapted to diseases of high action, at least until after active depletion has been premised.

2. It should never be employed to the exclusion of more active remedies when they are indicated

3. It is best adapted to diseases of a Chronic Character, (and those Cases,

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where the pulse and other functions are below the natural standard; and its employment should in general be preceded by an emetic or active purgative.

4. When by continued use it produces griping, it should be intermitted a few days.

5 The mode of its administration is generally in doses of from ʒj to ʒij two or three times a day, when given as a laxative. But when given as a diaphoretic, or to obtain the benefit of its other properties, the quantity should be lessened. To answer the latter intention, about ʒj every third or fourth hour is perhaps sufficient.

Enough, it is presumed, has been said, to illustrate in some measure, the importance of Sulphur as a medicine; and the circumstances under which it may be most advantageously employed. As a popular remedy, it is certainly well calculated to admit of extensive application, on account of its safety; and its use might with propriety be farther encouraged. It would, in many respects, be infinitely preferable, to the numerous Nostrums which have been prepared by empyrics, and vended in such abundance throughout our country; to the injury of the Community; and the reproach of an enlightened Government, for legalizing such deceptions. To the attention of